

FR-TRAN-ZX-C

Fortinet® FR-TRAN-ZX Compatible TAA 1000Base-ZX SFP Transceiver (SMF, 1550nm, 90km, LC, -40 to 85C)

Features:

- INF-8074 and SFF-8472 Compliance
- Duplex LC Connector
- Single-mode Fiber
- Industrial Temperature -40 to 85 Celsius
- Hot Pluggable
- Metal with Lower EMI
- Excellent ESD Protection
- RoHS Compliant and Lead Free



Applications:

- 1000Base-ZX Ethernet
- 1x Fibre Channel
- Access and Enterprise

Product Description

This Fortinet® FR-TRAN-ZX compatible SFP transceiver provides 1000Base-ZX throughput up to 90km over single-mode fiber (SMF) using a wavelength of 1550nm via an LC connector. It can operate at temperatures between -40 and 85C. It is guaranteed to be 100% compatible with the equivalent Fortinet® transceiver. This easy to install, hot swappable transceiver has been programmed, uniquely serialized and data-traffic and application tested to ensure that it will initialize and perform identically. It is built to meet or exceed the specifications of Fortinet®, as well as to comply with MSA (Multi-Source Agreement) standards to ensure seamless network integration. This transceiver is Trade Agreements Act (TAA) compliant. We stand behind the quality of our products and proudly offer a limited lifetime warranty.

ProLabs' transceivers are RoHS compliant and lead-free.

TAA refers to the Trade Agreements Act (19 U.S.C. & 2501-2581), which is intended to foster fair and open international trade. TAA requires that the U.S. Government may acquire only "U.S.-made or designated country end products.")



Absolute Maximum Ratings

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Operating Temperature	Tc	-40		85	°C	
Storage Temperature	Tstg	-40		85	°C	
Supply Current	Icc		200	300	mA	1
Maximum Voltage	Vmax	-0.5		4	V	1
Bit Error Rate	BER			10 ⁻¹²		
Data Rate			1.25 1.062		Gbps	2

Notes:

1. For the electrical power interface.
2. IEEE 802.3. FC-PI-2 Rev. 5.

Electrical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Supply Voltage	Vcc	3.14	3.3	3.46	V	
Transmitter						
Input Differential Impedance	RIN		100		Ω	
Single-Ended Data Input Swing	VIN,pp	250		1200	mV	
Transmit Disable Voltage	VD	Vcc - 1.3		Vcc	V	
Transmit Enable Voltage	VEN	Vee		Vee + 0.8	V	
Transmit Disable Assert Time				10	μs	
Receiver						
Single-Ended Data Output Swing	VOOUT,pp	300	400	800	mV	
Data Output Rise/Fall Time (20-80%)	Tr/Tf			300	ps	
LOS Fault	VLOSA	Vcc - 0.5		Host_Vcc	V	
LOS Normal	VLOSD	Vee		Vee + 0.5	V	

Optical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Transmitter						
Output Optical Power	Ptx	0		5	dBm	1
Optical Center Wavelength	λ_C	1530		1570	nm	
Extinction Ratio	ER	9			dB	
Side-Mode Suppression Ratio	SMSR	30			dB	
Spectral Width (-20dB)	$\Delta\lambda$			1	nm	
Optical Rise/Fall Time (20-80%)	Tr/Tf			180	ps	
Relative Intensity Noise	RIN			-120	dB/Hz	
Deterministic Jitter Contribution	DJ			60	ps	
Total Jitter Contribution	TJ			130	ps	
Receiver						
Receiver Overload	Pol	0		dBm		
Optical Center Wavelength	λ_C	1260		1600	nm	
Receiver Sensitivity	Rx_Sen			-27	dBm	
Optical Return Loss	ORL	12			dB	
Receiver Electrical 3dB Upper Cutoff Frequency				1500	MHz	
LOS Assert	LOSA	-35			dBm	
LOS De-Assert	LOSD			-27	dBm	
LOS Hysteresis	LOSH	0.5			dB	

Notes:

1. Class 1 product.

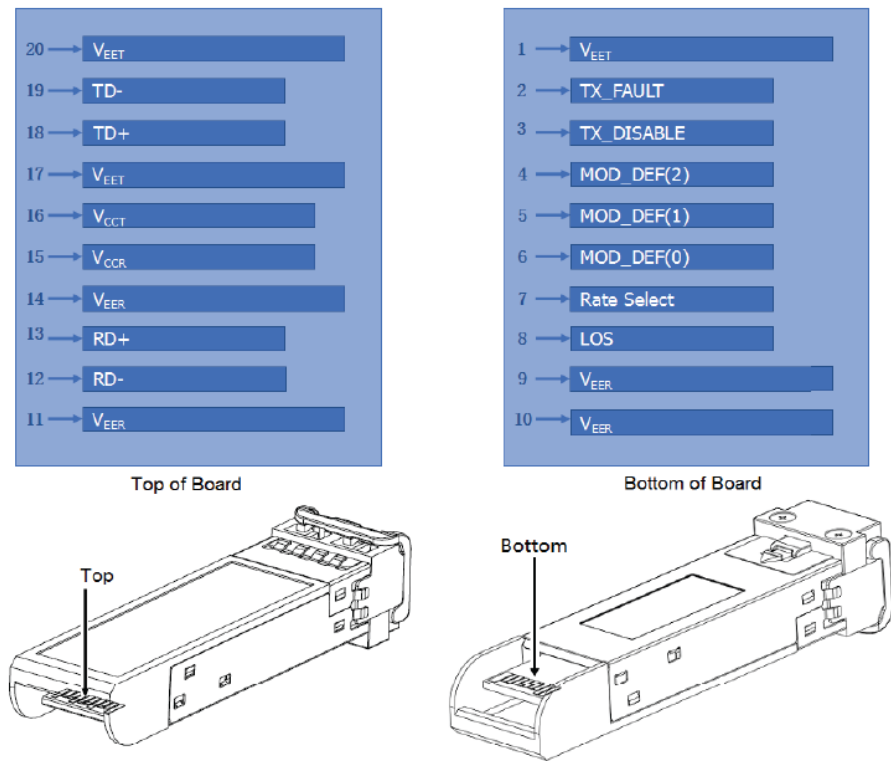
Pin Descriptions

Pin	Symbol	Name/Description	Notes
1	VeeT	Transmitter Ground (Common with Receiver Ground).	1
2	Tx_Fault	Transmitter Fault. Not Supported.	
3	Tx_Disable	Transmitter Disable. Laser output disabled on “high” or “open.”	2
4	SDA	Module Definition 2. Data Line for Serial ID.	3
5	SCL	Module Definition 1. Clock Line for Serial ID.	3
6	MOD_ABS	Module Definition 0. Grounded within the module.	3
7	RS0	No Connection Required.	
8	LOS	Loss of Signal Indication. “Logic 0” indicates normal operation.	4
9	RS1	Receiver Ground (Common with Transmitter Ground).	1
10	VeeR	Receiver Ground (Common with Transmitter Ground).	1
11	VeeR	Receiver Ground (Common with Transmitter Ground).	1
12	RD-	Receiver Inverted Data Out. AC Coupled.	
13	RD+	Receiver Non-Inverted Data Out. AC Coupled.	
14	VeeR	Receiver Ground (Common with Transmitter Ground).	1
15	VccR	Receiver Power Supply.	
16	VccT	Transmitter Power Supply.	
17	VeeT	Transmitter Ground (Common with Receiver Ground).	1
18	TD+	Transmitter Non-Inverted Data In. AC Coupled.	
19	TD-	Transmitter Inverted Data In. AC Coupled.	
20	VeeT	Transmitter Ground (Common with Receiver Ground).	1

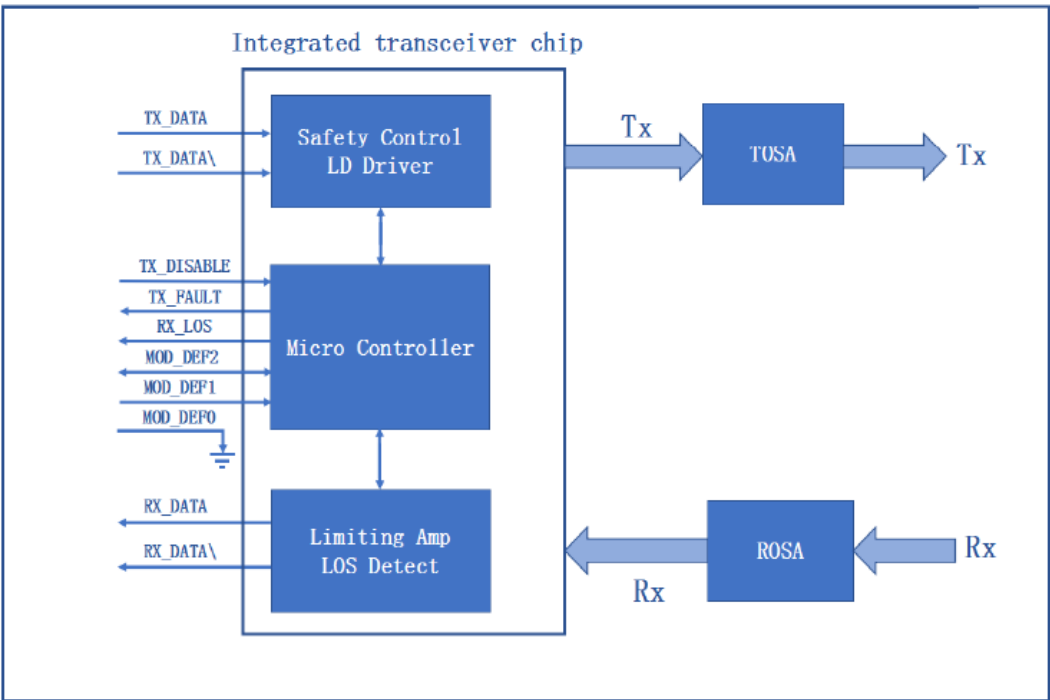
Notes:

1. The circuit ground is isolated from the chassis ground.
2. Disabled: Tdis>2V or open, enabled: Tdis<0.8V.
3. Should be pulled up with 4.7k Ω to 10k Ω on the host board to a voltage between 2V and 3.46V.
4. LOS is an open collector output.

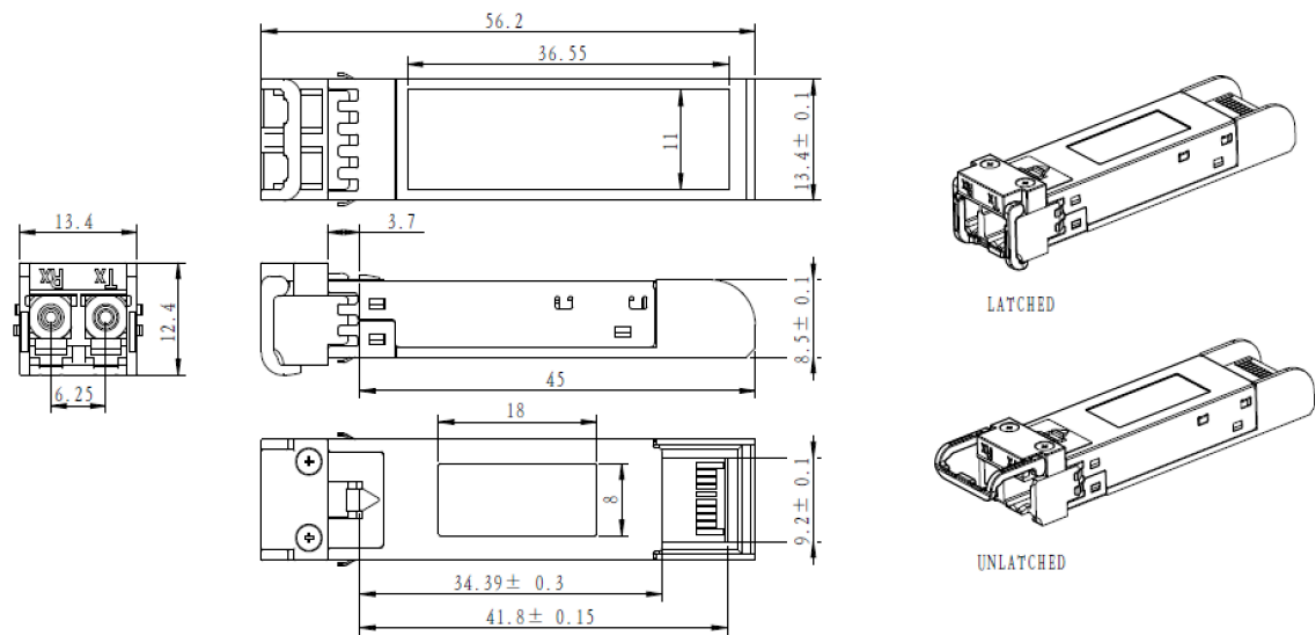
Electrical Pad Layout



Transceiver Block Diagram



Mechanical Specifications



All dimensions are ± 0.2 mm unless otherwise specified.
Unit: mm

About ProLabs

Our experience comes as standard; for over 15 years ProLabs has delivered optical connectivity solutions that give our customers freedom and choice through our ability to provide seamless interoperability. At the heart of our company is the ability to provide state-of-the-art optical transport and connectivity solutions that are compatible with over 90 optical switching and transport platforms.

Complete Portfolio of Network Solutions

ProLabs is focused on innovations in optical transport and connectivity. The combination of our knowledge of optics and networking equipment enables ProLabs to be your single source for optical transport and connectivity solutions from 100Mb to 400G while providing innovative solutions that increase network efficiency. We provide the optical connectivity expertise that is compatible with and enhances your switching and transport equipment.

Trusted Partner

Customer service is our number one value. ProLabs has invested in people, labs and manufacturing capacity to ensure that you get immediate answers to your questions and compatible product when needed. With Engineering and Manufacturing offices in the U.K. and U.S. augmented by field offices throughout the U.S., U.K. and Asia, ProLabs is able to be our customers best advocate 24 hours a day.



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